



# UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
United States Patent and Trademark Office  
Address: COMMISSIONER FOR PATENTS  
P.O. Box 1450  
Alexandria, Virginia 22313-1450  
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/728,801	12/08/2003	Tatsuro Nagahara	FN4104US-CIP	8923

7590

10/19/2005

Alan P. Kass  
Clariant Corporation  
70 Meister Avenue  
Somerville, NJ 08876

EXAMINER
----------

LEE, SIN J

ART UNIT	PAPER NUMBER
----------	--------------

1752

DATE MAILED: 10/19/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/728,801

Applicant(s)

NAGAHARA ET AL

Examiner

Sin J. Lee

Art Unit

1752

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --.

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 13 July 2005.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 4-6, 8-15 and 17-19 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 4-6, 8-15 and 17-19 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 08 December 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☒ Certified copies of the priority documents have been received in Application No. 09/806,852.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

*Mc*

### DETAILED ACTION

1. In view of the amendment of July 13, 2005, previous double patenting rejections on claims 1-3, 7, 11-13, 15 and 16 over copending App. No.'656 in view of Chin et al'665 or Thackeray et al'035 are hereby withdrawn.

2. Due to newly cited prior arts, the following rejections are made non-final.

#### ***Claim Rejections - 35 USC § 102***

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 4-6, 8-15 and 17-19 are rejected under 35 U.S.C. 102(b) as being anticipated by Nagahara et al (EP 1 164 435 A1).

Nagahara teaches (pg.2, lines 55-57 and pg.3, lines 12-23) the following composition:

(4) The photosensitive polysilazane composition described in (1) wherein said polysilazane is mainly a polysilazane having a number average molecular weight of 100 to 100,000 that contains the skeleton represented with the following general formula (II):



(wherein, R<sup>4</sup> and R<sup>5</sup> respectively and independently represent a hydrogen atom, an alkyl group, an alkenyl group, a cycloalkyl group, an aryl group, a group other than these groups in which the portion bonded directly to silicon or nitrogen is carbon, an alkylsilyl group, an alkylamino group or an alkoxy group, and n is an arbitrary integer).

(5) The photosensitive polysilazane composition described in (4) wherein, in the above formula (II), R<sup>4</sup> is a methyl group or phenyl group, and R<sup>5</sup> is a hydrogen atom.

Nagahara furthermore teaches that the photosensitive composition contains a photoacid generator such as t-butyl peroxybenzoate, 3,3',4,4'-tetra(t-butylperoxycarbonyl)benzophenone or bis(t-butylperoxy)diisopropylbenzene (see pg.3, lines 28-31). Nagahara also teaches the use of a sensitizing dye such as coumarin as well as an oxidation catalyst such as palladium propionate in his composition (see pg.3, lines 32-39). Nagahara also teaches the following method in pg.2, lines 51-54

(2) a method of forming a patterned polysilazane film comprising a step in which a coated film is formed of a photosensitive polysilazane composition containing a polysilazane and a photoacid generator, a step in which said coated film is exposed to light in a pattern, and a step in which the exposed portion of said coated film is dissolved off.

Nagahara teaches that the patterned polysilazane film formed by such method is converted to a silica-based ceramic coating by allowing the film to stand in an ambient atmosphere or by baking the film (see pg.3, lines 42-44). Therefore, Nagahara teaches present inventions of claims 4-6, 8-15 and 17-19.

5. Claims 4-6, 8-15 and 17-19 are rejected under 35 U.S.C. 102(e) as being anticipated by Nagahara et al (US 2003/0113657 A1)

The applied reference has a common inventor with the instant application.

Based upon the earlier effective U.S. filing date of the reference, it constitutes prior art

under 35 U.S.C. 102(e). This rejection under 35 U.S.C. 102(e) might be overcome either by a showing under 37 CFR 1.132 that any invention disclosed but not claimed in the reference was derived from the inventor of this application and is thus not the invention "by another," or by an appropriate showing under 37 CFR 1.131.

Claims 6 of Nagahara teaches a photosensitive polysilazane composition comprising a polysilsesquiazane having a number average molecular weight of 100 to 100,000 and containing a basic constituent unit of  $-\text{SiR}^6(\text{NR}^7)_{1.5}-$ , in which  $\text{R}^6$  represents a  $\text{C}_{1-3}$  alkyl group or a phenyl group and  $\text{R}^7$  represents a H atom, a  $\text{C}_{1-3}$  alkyl group or a phenyl group, and a photoacid generator. Based on this teaching, one skilled in the art would immediately envisage the  $\text{R}^6$  to be a methyl group and the  $\text{R}^7$  to be a H atom. Also, claim 14 of Nagahara teaches a method forming a patterned inter-layer dielectric, which comprises forming a coating film of the radiation sensitive polysilsesquiazane composition, patternwise irradiating the coating film, dissolving and removing the irradiated part of the coating film, and leaving the residual patterned coating film in the ambient atmosphere or burning the coating film.

As photoacid generator, Nagahara teaches peroxides (such as 3,3',4,4'-tetra(t-butylperoxycarbonyl)benzophenone shown in [0163]) and nitrobenzyl ester (see [0083]). Therefore, Nagahara teaches present inventions of claims 4-6 and 11-15.

Nagahara also teaches the use of a sensitizing dye such as coumarin in [0033] and the use of an oxidization catalyst such as palladium propionate in [0035]. Therefore, Nagahara teaches present inventions of claims 8-10 and 17-19.

Art Unit: 1752

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Sin J. Lee whose telephone number is 571-272-1333. The examiner can normally be reached on Monday-Friday from 9:00 am EST to 5:30 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Cynthia Kelly, can be reached on 571-272-1526. The fax phone number for the organization where this application or proceeding is assigned is **571-273-8300**.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

*S. J. Lee*

S. Lee  
October 15, 2005

*Sin J. Lee*

**SIN LEE  
PRIMARY EXAMINER**